CONCLUSIONS. The prevention of common respiratory tract and enteric infections during early childhood does not change later allergic morbidity.

REVIEWER COMMENTS. This particular hygiene intervention, aimed at decreasing the frequency of common childhood upper respiratory and gastrointestinal illnesses, was not successful in decreasing the development of asthma, allergic rhinitis, or AD among this cohort. The authors argued that the magnitude of the reduction in infections and duration of the intervention should have led to an increase in asthma rates as proposed by the hygiene hypothesis. However, the infection history was based on clinical symptoms and use of antibiotics rather than more definitive laboratory diagnostic measures for specific bacteria and/or viruses. In addition, the follow-up data were based solely on questionnaire findings, which have an inherent reporting bias. Regardless, additional studies are necessary to characterize the role of the hygiene hypothesis in the development of atopic disease.

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Neonatal Antibiotic Treatment Is a Risk Factor for Early Wheezing

PURPOSE OF THE STUDY. To analyze the risk factors for wheezing at 12 months of age with special reference to antibiotic treatment.

STUDY POPULATION. Participants were infants in western Sweden, which includes urban, rural, and coastal areas, who are participating in an ongoing study. Of the total birth cohort of 16,682 infants born in 2003, 50% (8176) were randomly selected.

METHODS. Families of infants were sent an invitation to participate in the study. Respondents completed questionnaires regarding the infant and the family when the child was 6 and 12 months of age. Response rates were 68.5% at 6 months and 68.9% at 12 months. Factors significant in an initial univariate analysis were analyzed in a multivariate model.

RESULTS. At 12 months of age, 20.2% of infants had ≥1 episode of wheezing, and 5.3% had ≥3 episodes of wheezing during the first year of life. Overall, 41.1% received inhaled corticosteroids (ICSs). In the multivariate analysis, independent significant risk factors for “wheezing ever” and for wheezing disorder treated with ICSs were neonatal antibiotic treatment, male gender, gestational age (GA) of <37 weeks, having a mother with asthma, having a sibling with asthma or eczema, and breastfeeding for <5 months. Treatment with antibiotics was more common among extremely preterm infants. Neonatal antibiotic treatment increased the risk of later wheezing in both term and preterm infants. The odds ratio (OR) for infants with a GA of ≥33 weeks was 2.9 (95% confidence interval: 1.8–4.7) and for infants with a GA of ≥37 weeks was 2.9 (95% confidence interval: 1.7–4.9).

CONCLUSIONS. The authors found that treatment with antibiotics in the neonatal period is the most potent independent risk factor for wheezing treated with ICSs during the first year of life.

REVIEWER COMMENTS. Previous studies have suggested that antibiotics in the first year of life are a risk factor for developing asthma. It is difficult, however, to exclude the confounder that infants who wheeze may receive more antibiotics during the first year of life. The advantage of this large study is that administration of antibiotics in the neonatal period was evaluated as an independent risk factor. An obvious limitation, however, is that the study was conducted with a questionnaire that required parental recall. Additional limitations that were partly addressed included lack of determination of the type or duration of antibiotics given, the underlying diagnoses, and confirmation of asthma diagnoses. Nonetheless, this study supports the hygiene hypothesis and presents an opportunity to consider asthma/allergy prevention strategies.

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Atopic Sensitization and the International Variation of Asthma Symptom Prevalence in Children

PURPOSE OF THE STUDY. The International Study of Asthma and Allergies in Childhood (ISAAC I) found that the prevalence of asthma symptoms varies >15-fold among various countries. ISAAC II was designed to identify why such differences occur.

STUDY POPULATION. Studied were a random sample of 8- to 12-year-old children (n = 54,439) in 22 countries worldwide.

METHODS. Data were collected by parental questionnaires (n = 54,439) and skin-prick tests (n = 31,759). Economic development was assessed by gross national income per capita.

RESULTS. Prevalence of current wheeze (wheeze during the last year) ranged from 0.8% (Ecuador) to 25.6% (United States) and varied by income tertile. Prevalence of physician-diagnosed asthma also showed this geographic variation, with highest prevalence in high-income countries. Variations in dietary content and other factors are possible explanations.
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